

Falcon BBR - Brainstorming buddy for Researchers  
- Raghavan Muthuregunathan

# Problem statement

Researchers have creativity block.

- We read long articles, scholarly work, grok them
- The creativity is blocked tend to develop tunnel vision.
- Inspired from the WHACK ios app, there is a need for co-pilot who can think out of the box

# Solution - Falcon 180B to the rescue

- Falcon 180b is used as a brainstorming buddy for researchers
- LLM's creativity by setting a high temperature, repetition penalty can force creativity.
- Sometimes hallucination (often a problem) can unleash creativity by **CONNECTING DOTS from unrelated fields**

# Technical solution

- Indexed 16000 arxiv articles from August 2023 only.
- Example Input: arxiv id 2308.15699 is the input for <https://arxiv.org/abs/2308.15699>
- Using prompt engineering, we ask Falcon to provide an innovative next step and crazy idea connecting dots to an orthogonal field.
- App.py  
<https://huggingface.co/spaces/Raghavan1988/falcon-lablabai-hackathon-brainstorming-buddy-for-researchers/blob/main/app.py>

<https://arxiv.org/abs/2308.15699>

Investigating Quantitative-Qualitative Topical Preference: A Comparative Study of Early and Late Engagers in

Title: Investigating Quantitative-Qualitative Topical Preference: A Comparative Study of Early and Late Engagers in Japanese ChatGPT Conversations

FOUR KEY FINDINGS OR CONTRIBUTIONS OF THIS STUDY

1. ChatGPT early engagers focus on forward-looking topics and emphasize technology advancements.
2. Late engagers are more concerned with optimizing current AI capabilities and considering inherent limitations.
3. Early engagers have a narrow range of perspectives while late engagers show a wide range of viewpoints.
4. Weak correlation between tweet volume and diversity of discussed topics.

CREATIVE ACTIONABLE IDEA FOR FUTURE EXTENSION OF THIS RESEARCH 🔥💡 "Investigating how the use of AI in the workplace affects employee job satisfaction"

ONE CRAZY IDEA 💡😜 "Using the principles of ChatGPT to improve pet communication devices" Falcon: One unrelated field where the findings of this study can be applied is the field of fashion design. It can be used to analyze consumer preferences and feedback to develop better fashion designs and styles. 🎨👗👠👜

Chatbot

2308.15699

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2308.15699

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🗑 Clear

☰ Examples

2308.15699

2308.00205

2308.05204

2308.10873

2308.06355

# Applies BERT for agriculture

**Title:** SpikingBERT: Distilling BERT to Train Spiking Language Models Using Implicit Differentiation

Falcon: KEY FINDINGS:

- Proposed a spiking language model that reduces computational cost
- Utilized implicit differentiation technique to train neuromorphic spiking LM
- Designed a spiking attention mechanism for scalability
- Developed a knowledge distillation technique using pre-trained BERT model

CREATIVE ACTIONABLE IDEA for FUTURE extension of the RESEARCH with 🔍 EMOJI: Further explore the potential of spiking attention mechanisms in other language models.

ONE CREATIVE IDEA for FUTURE extension with 🧠 EMOJI: Investigate how the developed knowledge distillation technique could be applied to improve speech recognition technology.

CRAZY IDEA in 20 WORDS: Spiking language model technology could revolutionize the field of agriculture by improving plant communication through the integration of neuromorphic chips in crop management systems. 🌱🤖

## Applies BERT for optimizing solar panels

Chatbot

2308.10873

**Title:** SpikingBERT: Distilling BERT to Train Spiking Language Models Using Implicit Differentiation

Falcon: FOUR KEY FINDINGS:

1. Proposes a bio-inspired spiking language model to reduce computational cost of conventional LMs.
2. Develops a framework leveraging the average spiking rate of neurons for training neuromorphic spiking LM.
3. Designs a spiking attention mechanism for scalable spiking LM.
4. Demonstrates ANN-SNN knowledge distillation for pre-trained BERT model to train spiking architecture.

CREATIVE ACTIONABLE IDEA: 🔍 Investigate the use of SpikingLMs for improving energy efficiency in natural language processing applications.

CRAZY IDEA for UNRELATED/ORTHOGONAL FIELD: 😊 Using spikingLMs to optimize solar panel output by mimicking photosynthesis.